Appalachian Scholars Aid ARS Scientists in Australia and France

The husky sport-utility vehicle looks rugged enough to go just about anywhere. But...the steering wheel's on the wrong side.

Welcome to Australia, where drivers take the right-hand seat, seasons are the opposite of those back home, and people enjoy a peculiar-looking, yeast-and-vegetable paste called Vegemite.

For two young women who traveled from southern Appalachia halfway around the world to work for 4 months at the ARS Australian Biological Control Laboratory, getting acclimated to the culture, climate, and customs was all part of their grand adventure in science.

Kelly L. Cutchin and Laurie H. Hewitt are top students at Berea College, located in the rural Kentucky town of the same name. Voted one of the nation's best regional liberal arts colleges by *U.S. News and World Report* in 1999, Berea is among the 10 U.S. institutions that belong to the Consortium of Agriculture Programs at Independent Colleges and Universities.

The internships—newly offered by ARS' Office of International Research Programs—took Kelly and Laurie to Indooroopilly, about 500 miles north of Sydney. Jointly operated by ARS and Australia's Commonwealth Scientific and Industrial Research Organization, or CSIRO, the Australian Biological Control Laboratory is home base for innovative indoor and field investigations of interesting beetles, flies, and other creatures.

Says entomologist and laboratory director John A. Goolsby, "We're finding out whether any of these organisms could be safely imported into the United States to help stop the spread of invasive, exotic plants, like Old World climbing fern or melaleuca. These plants aren't a problem in Australia, where they're native. But they're ruinous in America."

Kelly's and Laurie's main assignment was to comb woodlands along Australia's east coast for an odd treasure: melaleuca galls. About the size of a marble, these knobs can house small flies and even smaller, wormlike nematodes that Goolsby and colleagues suspect could be used to undermine melaleuca's advance in places like Florida's Everglades.

KEITH WELLER (K9363-1)

At Berea College, (left to right) ARS program analyst Heather Phelps and students Laurie Hewitt, Kelly Cutchin, Chloe Tewksbury, and Karen Friley take a break from working in the greenhouse.

At first accompanied by Goolsby—or by entomologists Jeffrey Makinson or Matthew F. Purcell of CSIRO—Kelly and Laurie became proficient enough to work on their own, making countless forays every week into the countryside, or "bush," to harvest galls. In all, they collected more than 8,000 galls—a remarkable haul. Back at the lab, they helped painstakingly box and ship this biological control booty to Florida, where ARS researchers are following up with additional tests (see story, page 26).

The American scholars also aided with host-specificity tests, which are needed to determine whether promising biological control agents attack only the target plant—and don't wander off to eat or make a home in others. And the interns pitched in with routine chores like watering plants and carefully flattening, or pressing, plant specimens for safekeeping at an herbarium.

At about the same time that Kelly and Laurie started their internships, two other Bereans were finishing up 3 months of work at ARS' European Biological Control Laboratory (EBCL). Located on the outskirts of Montpellier, on France's southeastern coast, EBCL "offers a wealth of scientific expertise and hands-on experience in the field of biological insect and weed control," says laboratory director Paul C. (Chuck) Quimby, Jr.

Berea intern Chloe E. Tewksbury worked with EBCL plant pathologist Timothy L. Widmer, lead scientist on a project to collect, describe, and test microorganisms with potential to biologically control invasive plants, such as yellow starthistle. This weed can poison horses and crowd out useful vegetation.

"Chloe looked at the infection caused by fungi known as *Alternaria*," says Widmer. "She also helped extract, or isolate, this fungus from plants."

Berea teammate Karen L. Friley helped EBCL entomologist Kim A. Hoelmer collect and rear beneficial *Peristenus stygicus* wasps. These insects lay eggs in the juvenile, or nymph, stages of *Lygus* bugs, a sap-sucking pest of many U.S. crops.

Hoelmer's U.S. collaborators plan to mass-rear and release the little wasps to battle *Lygus* bugs in alfalfa in Delaware and California and in cotton in California and Mississippi.

Quimby and Goolsby give rave reviews about the quality and quantity of the interns' work. Montpellier scientists worked with two other Berea interns—Jennifer L. Barth and Stephanie R. Green—in January. The Australian lab plans to host another team of Berea interns for a 3-month stint later this year, according to Heather M. Phelps at the Office of International Research Programs. Phelps directs the Berea internship program.—By **Marcia Wood** and **Jan Suszkiw,** ARS.

This research is part of Crop Protection and Quarantine, an ARS National Program (#304) described on the World Wide Web at http://www.nps.ars.usda.gov.

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